Spring 1987

Iowa Agriculturist Spring 1987

Stephanie Dudden
Iowa State University

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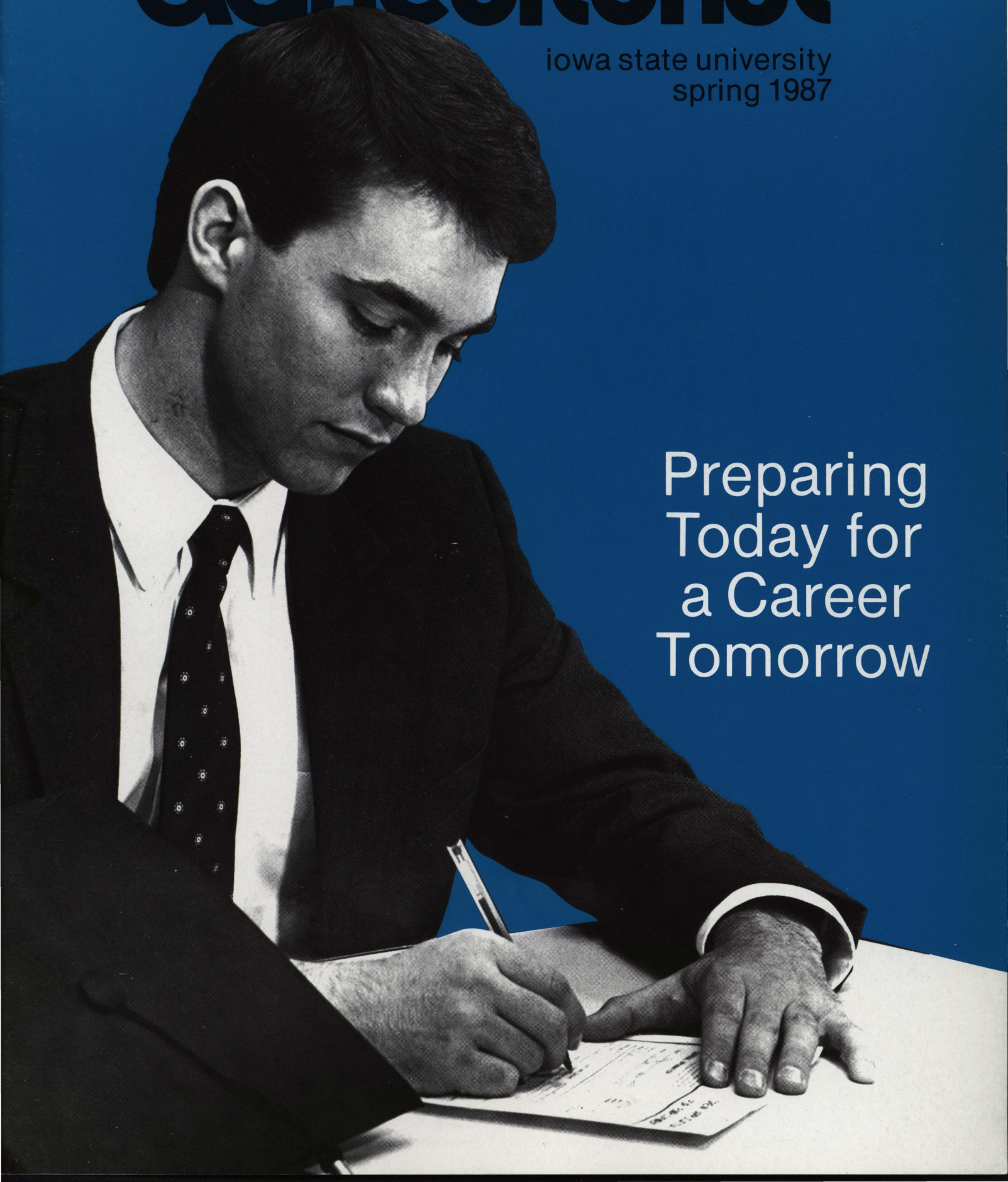

Preparing Today for a Career Tomorrow

iowa agriculturist

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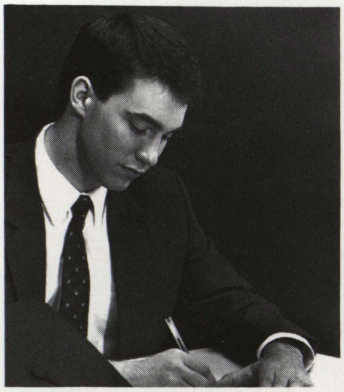

On the cover: Paul Snyder, a graduating senior, fills out a job application in hopes to begin a career in Agriculture Business that he has academically prepared himself for.
Photo by Jim Lee.

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Stephanie Dudden

behind the editor's desk

Thank You, Triple "F" Inc.

A career. The goal all of us, as students in the College of Agriculture are now preparing for.

However, the first question that comes to mind is: are we preparing for the right career in such a diverse and rapidly changing industry?

According to articles in this issue, future jobs in agriculture are becoming more service and management oriented. However, one needs to always remember the farmer, the backbone of the agriculture industry.

Today, because of technology, these individuals in the production sector of agriculture have become more specialized and are demanding specific services. Tomorrow, we will be the indiviuals supplying those services to the farmers.

With this issue we illustrate who is in the College of Agriculture and how academic curriculums in the college have changed to meet the needs of future careers.

Besides academically preparing for tomorrow's careers, internships and encouragement from professionals is always appreciated.

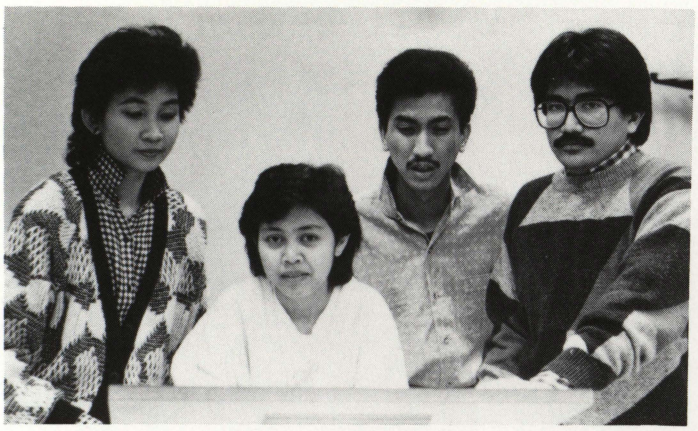
The magazine staff would like to express a sincere appreciation to Triple" F" Inc., Des Moines, Iowa, who donated $100 to our staff development grant.

This encouragement gives us the opportunity to pay our staff members and continue to provide a quality publication to students in the College of Agricultue.

I personally would like to challenge other professionals in the agriculture industry to meet or exceed the donation the magazine received from Triple "F" Inc..

With a quality education, experience in the agriculture sector and encouragement from professionals all of us will, someday, have a successful career.

However, no one will be able to determine if today, we are training for tomorrow's job. In another 15 years, after we find ourselves in a professional position, then, maybe, we can look back at the days spent as students in the College of Agriculture, and determine whether we are preparing for the right career. ■



Pictured above are Rafidah Idris, Hamisah Hafni, Nur-Ruhizan Noh Abdullah and Sin Hoi Chiew committee members who coordinate the fund raising projects for the Malasian Farm-Aid Scholarship. Not pictured is Azlan Tahir. Photo by LaNette Kleen.

Malaysian Students Assist in Farm Crisis

Almost 100 students from Malaysia who are attending Iowa State University are involved in raising $10,000 to pay for the education of a student at ISU who is from an economically-stressed Iowa farm family.

"When the inital idea was expressed I thought it was great," says John Wong, a Malaysia native and adviser to the Malaysia Student Association.

According to an article in the Feb. 3, issue of the *Des Moines Register*, officers of the student organization launched the effort in January. Their first fund raising event was a production of *A Night in Malaysia* on January 30.

"The students in the association made all the costumes and put on the production themselves," explains Wong. The Fisher Theater on the ISU campus was filled to capacity, and according to the *Register* article, the enthusiasm of the performers and the audience was terrific.

The Malaysian students realize they will not be able to solve Iowa's farm problem, but they want to do their part. "We take home so much from Iowa with the educations we receive here and we just want to give something back," said Azlan Tahir in the *Register* article.

At the beginning of February the association had raised $4,000, and other fundraising programs were being planned.

Wong says different people have responded in different ways. However, he concludes, "I don't think the project has yet peaked."■

Professor Awards

The Kenneth A. Spencer Award, which recognizes outstanding achievement in agricultural chemistry, was presented to Iowa State University faculty member John M. Bremner, Charles F. Curtiss Distinguished Professor in Agriculture and professor in the agronomy and biochemistry departments.

Bremner is being honored for the contributions he has made to soil chemistry and soil biochemistry during the past 40 years.

The award, which is sponsored by the Kansas City Section of the American Chemical Society, consists of a $3,000 honorarium and a medal of honor. Bremner received the award at a dinner in his honor February 12, 1987 in Kansas City.

Other faculty members in the College of Agriculture who received awards include: Associate Professor **Eric Hoiberg**, department of sociology, received the Amoco Foundation Outstanding Teacher Award.

The Louis Thompson Outstanding Adviser Award was presented to Professor **Brent Pearce**, agronomy department. **Joe Sebranek**, animal science professor, was awarded the Louis Thompson Award for Scholarly Achievement in Teaching.

Together, sociology department Professor, **Willis Goudy**, and agronomy department Professor, **Gerald Miller**, received the Excellence in Applied Research and Extension award.

These professors are the 1987 recipients. Several awards have yet to be announced.■

Judging Awards

The Iowa State University Crops Judging Team swept the championships of the two national collegiate crops judging contests in November— the American Royal Collegiate Contest in Kansas City and the National Collegiate Championships in Chicago.

Members of the ISU team were: Kevin Cavanaugh and Bill Curran, juniors in agronomy, Krystal Fober, a senior in agronomy and Larrette Sexton, a senior in agricultural business.

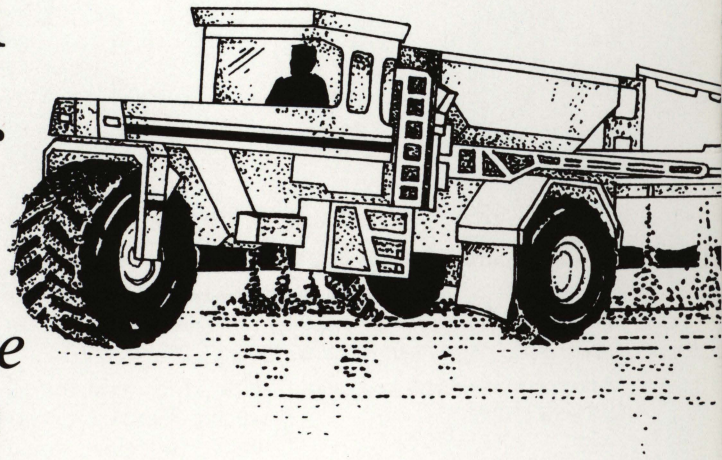
Alternates for the team were juniors in agronomy, Tim Dacken and Robert Meade.

In the American Royal, ISU placed first in seed analysis, second in crop/weed/disease identification and third in commercial grain grading. In the Chicago contest, ISU placed first in seed analysis and commercial grain grading and second in crop/weed/disease identification.

The ISU team is coached by Russ Mullen, associate professor of agronomy, assisted by seniors Mark Eganhouse and John Lilienthal and graduate student Ken Smicilas.■

The ISU Junior Livestock Judging Team placed fourth at the Denver National Western Livestock Show on January 9, 1987. Kneeling, are team members Paul Klemme, Mike Petzenhauser and Darren Dies. Standing, Coach Chris Skaggs and team members Bret Julian, Gina McAndrews, Jan Loving, Travis Grover and Pete Hayse.

Politics, Pollution and Pure Water



Solving the groundwater problems will require research, education and legislation.

by Doug Jeske

Rural residents are growing more concerned about the quality of their drinking water, according to Allan Lochmann, Story County Extension Director.

"But that concern is not one of alarm or anger," says Lochmann. "Farmers have seen the groundwater issue in the media and are simply responding in a reasonable manner."

Most of the publicity about the groundwater problem stems from the issue's new-found prominence in Iowa politics.

In Republican Governor Branstad's inaugural address four years ago, he said the environment was "not the burning issue it once was."

However, Branstad's 1987 Condition of the State Message called groundwater pollution "the biggest environmental threat we face" and pledged $37 milion to protect "the health of families on the farm and in the cities of the state."

Democrats agree with Branstad about the need for groundwater protection, but say he is underestimating the cost of such a program. The Iowa Department of Natural Resources proposed a 10-year, $236 million plan in December.

"Something has to be done about the situation," says Ralph Rosenberg, state democratic representative from Ames. "Groundwater pollution may be killing us," he says. "It may be doing it slowly, not with one fell swoop like an environmental disaster, but it may be killing us nonetheless."

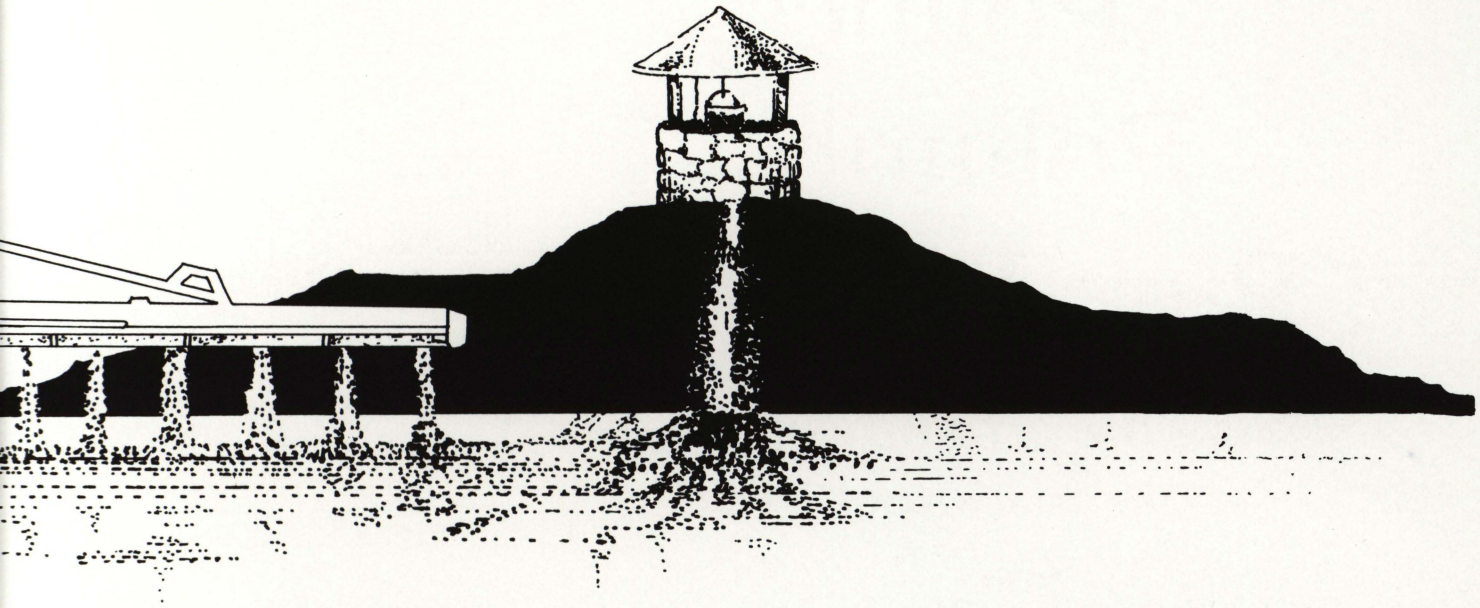
Rosenberg, chair of the House Committee on Energy and Environmental Protection, says his committee will look at legislation addressing the groundwater problem. New policies may include possible taxes on agricultural chemicals.

Legislators are not the only ones ready for action according to a September 1986 *Des Moines Register* Iowa Poll. The Poll indicates 75 percent of Iowans surveyed favor limits on farm chemicals and fertilizers, even if it reduces yields.

But Iowa State University agronomist, Alfred Blackmer, cautions legislators against any policy that would drastically reduce the amount of nitrogen fertilizer a farmer could apply.

"Nitrogen fertilizers are essential for crop production, and crop production is a very important part of this state's economy," says Blackmer, who is studying the leaching of nitrogen through the soil. "An across-the-board reduction (of nitrogen fertilizers) would harm the state's economy at an inopportune time."

More than two billion pounds of nitrogen is applied each year to Iowa farmland. Along with the increase of



crop yields, due to the fertilizer, has come an increase in the nitrate levels of the state's water supply.

Although speculations about the harmful effects of contaminated groundwater have been made, the only substantiated health risk is to infants. When nitrate levels reach 45 parts per million, a baby may suffer a type of brain damage which hinders oxygen flow to the brain. This disease is known as "blue baby syndrome."

ISU Extension water specialist Tom Glanville says there are no established standards for health dangers resulting from herbicides or insecticides.

"Groundwater pollution may be slowly killing us."
Rosenberg

"The Environmental Protection Agency is supposed to be developing a set of standards through research on animals," Glanville says. "But, research like that takes a long time since it is difficult to make the correlation between animals and humans," he adds.

Glanville says the lack of safety standards is one reason why more farmers are not testing for herbicide and insecticide pollution.

"Farmers want to get the results back and know whether their water is 'safe' or 'unsafe'," Glanville says. "Right now we just don't know what a safe or unsafe level is."

Another factor affecting tests for herbicides and insecticides is cost, says Glanville. A test for nitrates and chloroform bacteria costs $12 at the University of Iowa Hygenic Laboratory. A scan for the seven most common herbicides costs $100. And a test for five of the most common insecticides costs $90.

A common procedure for testing, according to Lochmann, is to get a postcard from the local Extension office and send it to a laboratory. When the laboratory receives the postcard, it will mail a bottle to the farmer, who collects a sample and sends it back to the lab.

"We used to keep sample bottles at the Extension office, but they would get contaminated as they sat on the shelves," he says.

Lochmann says most farmers bring their test results to him when they are sent from the lab.

"At that point we sit down and analyze what can be done to treat the problem, if there is one," explains Lochmann. Possibilities for treatment include filters and reverse osmosis, according to Lochmann.

While politicians and agriculturists differ in their perception of the problem, all agree that more research and education are needed.

Blackmer says more study on how crops utilize nitrogen needs to be done. In the December 10, 1986 issue of the *Iowa State Daily*, he said 45 percent of the nitrogen is either used by corn plants or remains in the soil. However, 55 percent cannot be traced.

"It's not fair," says Blackmer, "to say that all the nitrate we're not finding is going into groundwater."

Another possibility is denitrification, the process of nitrogen loss into the atmosphere when it is converted to gaseous oxides of nitrogen and/or elemental nitrogen.

Blackmer says the research of where nitrogen is going needs to be followed up with educational efforts.

"Once we get more conclusive findings, we can use the existing Extension network to help farmers use nitrogen more wisely," says Blackmer.

Rosenberg agrees with the need for more research and education because "a comprehensive problem needs a comprehensive approach."

Glanville says people need to learn more about the nature of the situation, and more study needs to be done on the potential health consequences of groundwater pollution.

However, Glanville is optimistic about the chances of solving the groundwater problem.

"There's no sense throwing up your hands and quitting," he says. "I think we may have caught the problem in time."■

by Malinda Miller

Weather was pressing with a 30 to 40 percent chance of rain, so we were hurrying along," says 23-year-old Todd Muir of Rippey, Iowa.

Muir and his father were putting equipment into the machine shed about 5:30 the afternoon of November 7, 1986. The combine would be moved outside to get rained on, but first Muir and his father had to clean out all the soybeans.

Muir, like most farmers, removed the bottom shield of the vertical auger that feeds grain into the horizontal auger, the part that delivers grain to a wagon. His dad started the combine and beans began sprinkling out of the horizontal auger.

Instead of making another mess on the machine shed floor, the combine was shut off and Muir reached up with his right arm into the 12-inch vertical auger to pull the beans down.

"I had my arm way up in there and I was just starting to pull it down and the combine started," says Muir.

"I yelled real quick, 'Dad, you just cut my arm off!' "

Battling time and weather, in one of the nation's most dangerous occupations, often results in farm accidents. Yet, with farm safety of such vital importance, federal funding was cut, leaving Iowa State University without an Extension farm safety specialist.

"The farming occupation continues to remain a hazardous one for Iowans to face," says Jerald DeWitt, associate director of ISU Extension Services.

Agricultural engineer Larry Van Fossen says, "Unfortunately, Iowa, with all of its agriculture, does not have a farm safety specialist at all. All states except nine have farm safety specialists. Iowa doesn't."

A farm safety specialist, who was part of the agricultural engineering department, resigned a year ago. As part of the reduction in Extension staff this fall, funding for this position was cut, explains Howard Johnson, department head of agricultural engineering at Iowa State.

Because of the vacancy, Van Fossen represents ISU on a safety service task force currently writing 15 different fact sheets on elevator operation safety. A farm safety specialist from Illinois, Missouri, Kansas and Nebraska make up this task force.

Frank Holdmeyer, Iowa Farm Safety Council president, says he thinks it is unfortunate that ISU does not have a farm safety specialist.

"The Council relies heavily on the farm safety specialist," says Holdmeyer. The university should continue working towards getting a farm safety specialist, even if it is only a part-time position, he adds.

DeWitt explains when Extension is funded by federal sources, unfortunately, the government decides what programs get funded. He says he hopes that Extension is in a better position a year from now by having a farm safety specialist.

"We strongly need someone to coordinate farm safety at ISU as well as for the state," adds DeWitt.

The need for a farm safety specialist in Iowa is obvious. According to the November 2, 1986 issue of the *Des Moines Register:*

- In three of the last 10 years, farming had the highest occupational death rate in the nation.
- About 1,600 of the 3.3 million employed in agriculture in 1985 were killed in work-related accidents, making the death rate 49 per 100,000 workers, just one point below mining's 50 per 100,000 workers.
- In 1985, there were another 170,000 farmers who suffered disabling injuries.

Morton Boyd, agricultural engineer instructor for agricultural safety at ISU, says when farmers are under pressure they take unnecessary chances, especially at harvest.

"Farmers work alone and unsupervised," says Boyd. A farmer is different from an individual who works under a manufacturer or union that has set safety standards.

Despite the loss of a farm safety specialist, DeWitt says, "The good news is farm safety work does continue."

Johnson says, "There has always been a question of safe operation of farm machinery and care in using chemicals." From his department's standpoint he says, "Our main chore is making sure farmers leave shields on (their power-take-offs, combines and other equipment) to avoid mismanagement."

There is also a concern for farmers

working in livestock confinement facilities.

ISU agricultural engineer professor, Vernon Meyer, says research done by ISU and the University of Iowa shows hog farmers have more respiratory problems caused by hog dust.

Another concern with hog confinement buildings is the risk of deadly gases which can build up in the manure pit. Meyer says both ISU and Iowa suggest farmers wear filter masks into hog buildings.

Meyer's department also is doing research on a dust removal system. This system ionizes dust particles by an electrical charge, then collects the particles on the other side of a hog shed.

According to DeWitt, the strongest area in farm safety is pesticide application training.

Wendy Wintersteen, ISU Extension entomologist, says the pesticide application certification program is required by law for all farmers and commercial sprayers using restricted pesticides.

A training session is conducted in every county by the Extension director. A farmer fills out a form and pays $5 to the Iowa Department of Agriculture in return for a certification card, explains Wintersteen.

The card must be presented before the farmer can purchase any restricted pesticides, and it must be renewed after three years. According to Wintersteen, a total of 100,000 Iowa farmers and commercial sprayers are certified.

"By training farmers and commercial sprayers, the chance of something bad happening is reduced," comments Wintersteen. Education about pesticide dangers, side effects, proper use and storage will reduce the number of accidents, she adds.

However, farm accidents do happen and rehabilitation for those involved is important.

Terry Willkomm, of Farm Family Rehabilitation Management (FaRM) in Ankeny, says, "The extension service does not have the expertise to provide farmers with ideas on how to farm with a specific disability."

She says a high percentage of disabled farmers will have another injury, but Extension does not provide information on such things as lifts for quadruplegic farmers, adapting equipment for blind farmers or providing disability adjusting counceling, to prevent secondary injury.

FaRM, a part of the Easter Seal Society of Iowa, was made possible by a grant from Management Consulting and Rehabilitation Services of Ankeny. This organization has provided rehabilitation services to farm families affected by physical disabilities for a year.

Rippey, Iowa farmer, Todd Muir, pictured at the Iowa Beef Expo, wears a sock over his recooperating arm for warmth and learned to write lefthanded after a farm accident injured his right arm. Photo by Malinda Miller.

"It's important for the farm family to realize life can go on after the farm accident," says Willkomm, who also is a member of the Iowa Farm Safety Council.

Muir and his family have realized that life must go on.

Muir says his accident was different from many others because two people were present at the time of the accident. Poor communication between Muir and his father, when the vertical auger was exposed, has been cited as the reason for the accident.

Muir yelled the first words that came to mind. His dad immediately shut off the combine, but it ran long enough for the auger to make a half turn, trapping Muir's arm inside.

His dad let out the double chain that runs the auger and freed Muir's arm. He was taken to the Dallas County Hospital in Perry and prepared for his Life Flight trip to Iowa Methodist Hospital in Des Moines.

Microscopic surgery was performed to reattach his arm, which was severely cut half way between his wrist and elbow. The arm was not completely separated, but it took nearly six hours, two steel plates, six screws, yards of surgical thread, a skin graft and the loss of a half-inch in the length to put his arm back together.

His had should regain feeling within the next three months. However, it could take up to two and a half years before he can feel sensations like hot and cold.

Muir will eventually get 90 to 100 percent use of his hand back thanks to a successful reattachment.

"Quit taking chances— it ain't worth it," says Muir. "This was all over $2 worth of beans, and there was only one half to three-fourths bushel of beans in the auger." ■

Ag College Loses Senator

Due to declining enrollments, the College of Agriculture will be allowed to elect only one representative to the Government of the Student Body Senate this spring.

According to apportionment figures released earlier this year, the College of Agriculture enrollment dipped to 2,211 this fall, 39 below the required 2,250 students needed to maintain the two senatorial positions. According to All-University Elections Commission Vice Chair Kevin Diehl, the GSB bylaws allow one senator for every 1,500 students in each college or residence area during the fall semester.

Diehl, a sophomore in agronomy and agricultural studies, says he was disappointed to see the College of Agriculture lose a senator.

"The Ag seats are the two most contested seats in the Senate, so it makes the loss especially a shame," says Diehl.

According to David Jeske, GSB executive assistant, last spring for the College of Agriculture, five individuals ran for two open positions, compared to the College of Design and Education where no one ran and write-in candidates were elected.

Jeske says he is unhappy about the loss of a GSB senator from the College of Agriculture. "Some of the best senators I've seen have come from the College of Agriculture, especially in the last two years," he adds.

Associate Dean of Agriculture Kenneth Larson says he is concerned about the situation.

"I'm always sorry to see the loss of an opportunity such as this," says Larson. "Not only is this a loss to the College of Agriculture, it is a loss to the individual who could gain valuable experience in the position."

But one current GSB senator for the College of Agriculture says the loss of the seat is not the important issue.

"The decline in enrollment in the College of Agriculture is more important than the loss of an Ag Senator," says Dan Holub, a junior in public service and administration and international agriculture. "This should send a message to the ag administrators to bolster efforts to increase enrollment."

However, Holub says students in the College of Agriculture should continue to seek committee and cabinet appointments in GSB. "This is where ag students can still have a voice," he adds.

"Ag students should not be discouraged by this," Holub says. "Rather, they should be encouraged to get more involved in other decision-making areas on campus." ■

Artwork for Agronomy

Money set aside by the Iowa Arts Council is giving Iowa State University, including the new agronomy addition, a facelift.

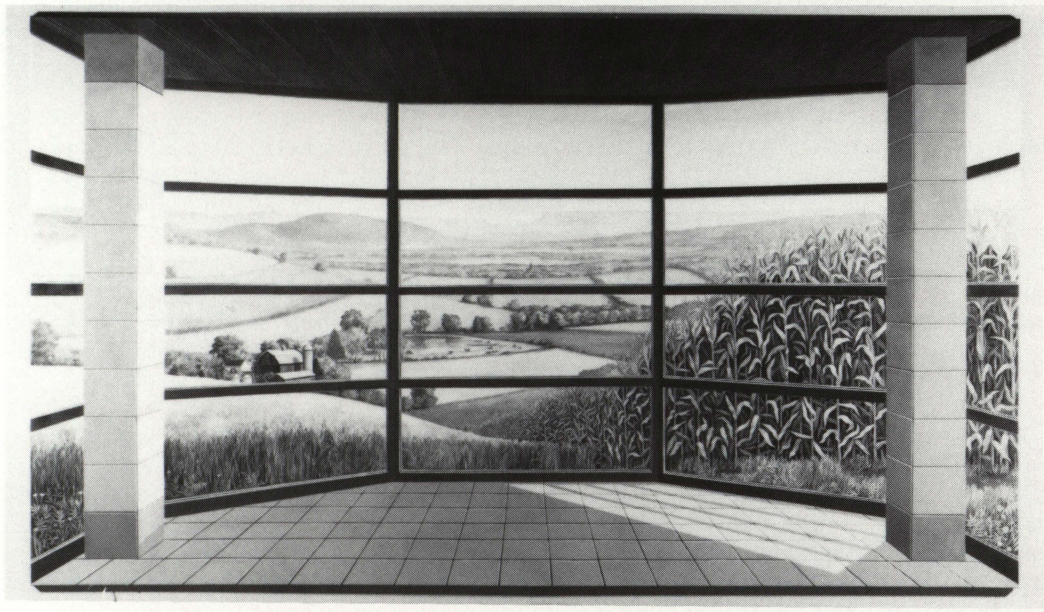
Iowa's Art in State Buildings (AiSB) law reserves one-half of one percent of the cost of state construction projects for the acquisition of fine arts in state buildings.

The artwork being added to the agronomy addition is not as controversial as Stephen DeStaebler's "Left-Sided Angel" by the Parks Library. Both, however, are large investments to the ISU campus.

The total cost for the agronomy project is over $136,000, according to Debra Steilen, information specialist at the Brunnier Gallery. Two interior murals by Richard Haas are valued at nearly $40,000. The outside metal sculpture, "Hanus Agri-Alter," by Beverly Pepper, was commissioned for approximately $77,000.

Most of the remaining money was used to purchase various paintings, drawings and weavings from 10 selected artists.

The outside sculpture by Pepper has been installed. Steilen says the remaining artwork is scheduled to be installed as soon as the agronomy building is completely remodeled. ■



The acrylic and oil mural by Richard Haas will be placed on the ground floor of the Agronomy building.

Funds Raised for Poultry Research

A cooperative effort by Iowa State University and Iowa's poultry industry is leading to the complete renovation of an existing labratory into a state-or-the-art research facility devoted to poultry disease.

The Iowa Poultry Association and the Iowa Turkey Federation, with help from ISU's College of Veterinary Medicine and Veterinary Medical Research Institute (VMRI), began a fund-raising campaign in December 1985 for renovation of the present research laboratory.

The goal was to raise $85,000, which would then be matched by funds from ISU. The $170,000 would be used to remodel the Poultry Disease Research Laboratory at VMRI.

The $85,000 goal was reached in January. Representatives from the two poultry organizations met with ISU President Gordon P. Eaton and the Iowa Turkey Federation presented him a "final" check.

Although the $85,000 has been given to the university, money is still coming in from the poultry industry, says Carolyn Taylor, executive secretary for the Iowa Turkey Federation.

"We're deeply appreciative of this effort," says Eaton. "Now we have to live up to our half of the bargain." With the $85,000 from the campaign "we're off and running and we'll rise to the challenge," he adds.

Speaking on behalf of both the turkey and poultry organizations, Bob Redhair, chairman of the Long-Range Planning Committee, says "We're most impressed with ISU and we want to develop a closer relationship between ISU and our associations."

A researcher for VMRI also speaks praise of the donation's goal being reached.

"We're grateful to both the Iowa Turkey Federation and the Poultry Association of Iowa for their confidence in ISU to solve growers' problems and to increase production," says Richard F. Ross, professor-in-charge of VMRI. "The institute is rededicating itself to stimulating growth in the poultry industry in Iowa."

The remodeled laboratory will be under the direction of Donald Reynolds, assistant professor with VMRI. Reynolds, a veterinary microbiologist, recently received a $150,000 "New Investigator" grant from the ISU Biotechnology Council to be used for equipment and research.

Researchers in the remodeled laboratory will look for ways to reduce losses from diseases and improve profitabliity of production. "There are serious economic losses in the poultry industry due to disease. Our research will be directed at decreasing those losses," explains Reynolds.

According to Reynolds, the team's research presently is in four main areas. ISU has a long history of poultry disease research. Under the leadership of the late M.S. Hofstad, who headed poultry disease research at VMRI for many years, ISU researchers can claim developments in several poultry disease areas.

The new facility will have approximately 1,800 square feet of usable laboratory and office space for poultry disease research.

Reynolds says several safeguards will be incorporated into the plan to eliminate the possibility of infections spreading or research projects being contaminated by one another. "This will allow us the capability to get into any kind of research we want to in the future," he concludes. ■

Researchers Look Beyond Production

ag·ri·cul·ture /'ag-ri-kul-chər/ n: FARMING, HUSBANDRY

by Laura Kritchman

Taken from the pages of Merriam-Webster--that is agriculture. But Iowans need to turn to a broader definition of agriculture to keep it alive in the state, according to several Iowa State University professors who are trying to open the doors to a larger view of agriculture.

"Agriculture is made up of two different sectors," says Lawrence Johnson, associate professor of food technology. "You've got the producers, but the other half of agriculture is in the processing and utilization side."

Discovering new methods of processing and utilizing crops is the mission of the Food Crops Processing Research Center (FCPRC) at ISU.

"Land grant colleges were largely created to address the production side," says Johnson, who is the professor-in-charge of the center. "There never has been a major university effort on the utilization side, even though I consider that to be 'one half of agriculture'."

Agricultural research at ISU got off the ground more than 120 years ago and has made significant contributions to the agricultural production system.

"Up to recent times we've been more concerned about a food crisis than a glut situation," says Johnson. "It's really not until the last couple of years that we have, on a world scale, been able to produce enough food to feed ourselves.

"We now can produce all the food we need. So now the question becomes, what are we going to do with the surplus?" asks Johnson.

As a response to the question, the FCPRC was initiated in 1984 at the suggestion of former lieutenant governor Bob Anderson. The state legislature initiated the center with an annually reoccuring $200,000 grant.

As the only full-time researcher at the center, Johnson became involved with it in June 1985 when he joined ISU's faculty after seven years at Texas A & M University.

Professors from ISU food and nutrition, food technology, agronomy and engineering departments are contributing research projects to the center's effort on a part-time basis.

In addition to conducting work in their own laboratories and receiving partial funding, the researchers have access to the center's year-old pilot plant processing facilities, located on the ground floor of the Dairy Industry building.

"This is a cooperative program between 12 to 15 faculty members spread across campus, focused on utilization research," says Johnson.

Johnson says the FCPRC has submitted a proposal for funding to both the state legislature and Congress this term. The additional funding would be invested in the birth of an even more ambitious research bank--Center for Food and Industrial Agricultural Product Development.

"Even though we're called the Food Crops Processing Research Center, we're involved in industrial products as well, and that's why with this new center title we've included industrial products," says Johnson.

The new center would encompass the FCPRC, integrate the existing Meat Export Research Center and the developing Meat Irradation Technology Center, and would also envelope a component of economics faculty.

Federal funding by the Department of Agriculture will be needed to fulfill a center objective to renovate all of the facilities in the Dairy Industry building. College of Agriculture Dean Lee Kolmer says USDA funding and the state request are complimentary, both are needed.

The College of Agriculture has requested $750,000 for a state allocation and asked the USDA for component funding of between $10 and $25 million. The U.S. Congress allocated the center $50,000 to study the concept of a larger center.

Kolmer says the possible center would give Iowa a competitive edge. "The state of Iowa will benefit in that the work is being conducted here, so scientists and businesses will be more likely to establish offices and plants in the state," he says.

Johnson says he believes commitment is growing toward the center and it will eventually get the resources it needs to expand facilities and employ additional researchers.

The expanded center's research would be directed toward three utilization areas. One aim would be developing new products and processes to make the United States more competitive in international markets.

Researchers would also direct biotechnology towards maximizing utilization of agricultural products. Thirdly, researchers would seek opportunities to replace petroleum-derived chemicals, plastics and other polymers with those produced from renewable agricultural commodities.

Plans for the center with added economics and technology-transfer components are an expansion of what the FCPRC is already doing.

The emphasis of the FCPRC is to develop data on crop properties and engineering aspects of processing.

Johnson says there are four aspects to the research. "One is the basic properties of crop material. The other three relate to processing."

Through research, says Johnson, faculty concentrate on trying to answer a pivotal question: How can we take apart corn and soybeans to come up with components that are more valuable in the market place?

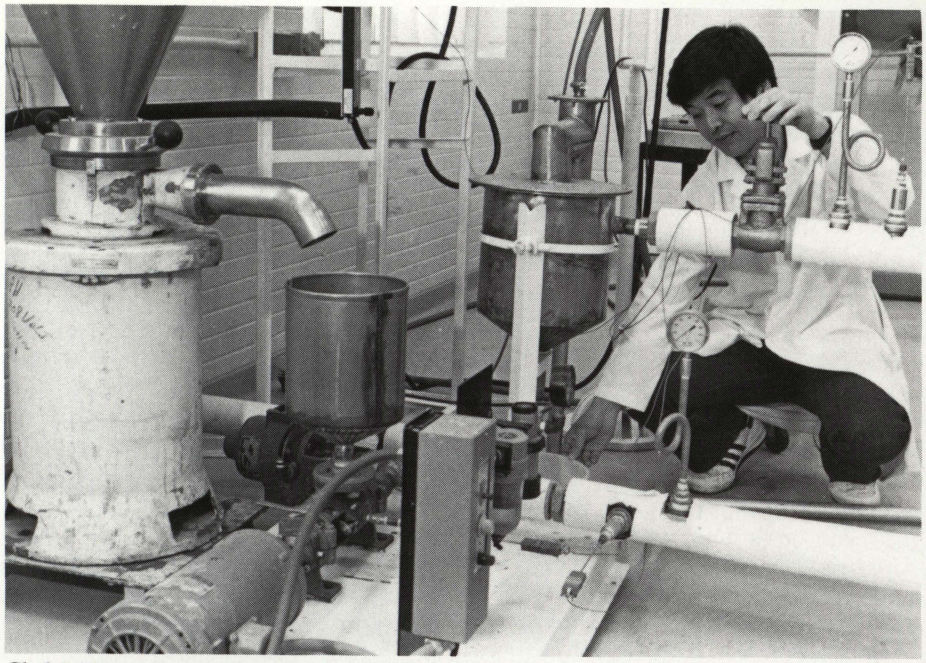
Understanding the basic properties of crop materials is the key to the FCPRC's goals. With the engineering aspects of equipment, it provides data that facilitates development of new and improved food products and more efficient processes.

To encourage that effort, Johnson says he and his collegues are trying to get funds to screen various lines of corn for unique starch properties.

"In Iowa we have national repository for the germ plasm bank on corn—25 to 30 thousand lines of corn," he says. "Yet we don't know what differences in functional properties of the starch that might exist in that germ plasm bank."

An identification of natural varieties of starch in corn that would be comparable to starches obtained from processing would be a desirable discovery for Iowa, says Johnson.

"I'm excited because that opens the door to grow special varieties of crops for special purposes that should come in at higher prices in the market place," he says.



Chul-Jai Kim, a graduate student in food technology, uses a rapid hydration hydro-thermal cooker for researching the cooking of soy milk. Photo by Jim Lee.

Production Research

Several current research projects are aimed at improving the operations and economics of industries that separate crops into components such as proteins, oils, starches and fiber. These components are used as food ingredients or raw materials for conversion into other materials.

One project, sponsored by the Iowa Corn Promotion Board, deals with altering technology for wet corn milling to improve its efficiency.

"What we're looking at are the use of alcohols to separate corn into its starch, oil and protein components," says Johnson, who is collaborating on the project with Kenneth Hsu, associate professor of food technology.

Johnson says the practiced batch steeping of corn in the wet milling process recovers enough starch, but robs too much energy and water.

"We are not at the point where we are prepared to say we've got an economically viable alternative," says Johnson. "We're no where close to that. But we are looking at technology which hopefully will improve the efficiency of wet-milling corn."

Starch recovery costs affect the processing expense for corn syrups, food and fuel ethanol. Johnson says if the costs can be reduced, corn products should become more competitive in the marketplace, which would be advantageous to farmers.

"Of the price paid for the products, the farmer should get a greater proportion of that finished product value," says Johnson.

Johnson is also working on a third project related to crop separation, monitoring of seed treatments that might increase the rate of oil extraction. He says the center officials are working with an Iowa equipment manufacturer to develop mechanical devices to improve oil extraction.

One device is the use of ultrasonic sound. "At certain frequencies they (soundwaves) will cause damage to cell walls," says Johnson. "What we're trying to do is break the cell wall in oil seeds so that it will extract faster."

The research would offer a greater capacity to seed treatment plants, in addition to a decrease in energy use, Johnson says.

Earl Hammond, professor of food technology, is also working to improve oil extraction. He is experimenting with liquid carbon dioxide as an alternative for extracting oils from soybeans and other crops. Because CO2 is nonflammable and inert, it has been effective in extracting oils and resins for flavorings, spices, pharmaceuticals and other expensive products.

Center researchers are also assisting industries that convert crop fractions into other food ingredients whose properties are more useful than the original.

Center scientists are improving a rapid-hydration hydrothermal cooking system. Johnson developed the system at Kansas State University for his Ph. D. program

The system has proven successful in creating soy-based products with improved taste, Johnson says, because it is capable of quick soybean processing, which is necessary for it to effectively prevent development of unacceptable flavors.

"The other thing we've observed with this process is that we can disperse everything but the hull of soybeans in a liquid beverage. All other conventional processes result in about a 65 percent recovery of the soybean in a liquid beverage," says Johnson. "We're able to recover 92 percent."

Because of the increased use, Johnson says the system would be far more economical in the market place. The products made by this process can be used as food ingredients or for

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soymilk, which has a small, but growing market in this country, says Johnson.

"There's growing evidence that our diet is too heavily animal oriented, so we've got to give people some alternatives," he says. "These kind of products offer that."

Soi Oil Research

In a related area, Hammond and Walter Fehr, professor of agronomy, are improving the quality of soy oil by reducing the linolenic acid content of the bean in a study funded by the American Soybean Board. Linolenic acid is prone to oxidation, which produces rancid flavors and odors.

Another conversion research project taking place at the center includes microbiological fermentation of corn starch into industrial chemicals. Researchers Bonita Glatz, professor of food technology, and Hammond are screening one of the largest collections of microorganisms that produce propionic acid, which is used to prevent mold on bread and can be used as a grain preservative, says Glatz.

Because use of propionic acid is expensive, Glatz says she proposes to develop a more productive microorganism.

"It's been known for years that it can be done," says Glatz. Currently, propionic acid is a product of industry as a chemical synthesis of small molecular components of petroleum.

"Chemical synthesis is tied to the price of oil," says Glatz, so it could be possible that a developed alternative would be less expensive.

The center researchers are considering the foreign market as a way to enhance the U.S. and Iowa markets. Mark Love, associate professor of food and nutrition, is examining extrusion methods to produce another conversion product, instant corn masa. As a primary ingredient in numerous Mexican foods, corn masa is produced by a long and expensive process.

By developing an instant tortilla flour, Love projects advantages.

"We have two basic goals," says Love. "First, it should use less water and less time. Secondly, using the right type of yellow flour in this instead of white flour should cost less."

"The U.S. food science departments and academic communities look down upon developing products for outside the U.S.," says Johnson. "What little new product development that has been done has been largely oriented toward Western foods."

Johnson says a center objective is to understand the export food market so technology can be considered to produce and ship world foods economically.

Johnson says the Japanese have 30 percent of the soymilk market. "They're buying our soybeans, processing them in Japan and shipping back the final product," he says. "That just doesn't make sense. We should be processing the beans in Iowa and exporting value-added products.

"The world's buying a lot of soybeans already," he says. "The question we're asking is, is it feasible for us to process soymeal, soymilk and tofu and get into the export market, and export those products rather than just the raw soybeans."

Refabrication Research

Refabrication research at the center will help answer some of the questions. Refabrication combines industrially-produced ingredients into foods that the consumer recognizes, explains Johnson.

One refabrication process by Wilson, Murphy and Jane Love, associate professor of food technology examines soybean lines that produce tofu with improved texture, color and flavor.

Mark Love and Hsu are doing refabrication research more appealing to American appetites. They hope to offer alternatives to potato chips and other munchies.

A process using autogenous extrusion has resulted in nutritionally improved snack foods that are high-protein mixtures of soy and cornmeal with no added sodium, salts or fats.

To open up more opportunities to farmers, the center is experimenting with crops such as crambe, amaranth and cuphea. Johnson says because there is little demand for the crops, center researchers hope to increase utilization so demand will increase.

Johnson is hoping Iowa will be on the cutting edge of new export markets. With the center's potential expansion if it gets federal and state funding, is the possibility of attracting industries to Iowa.

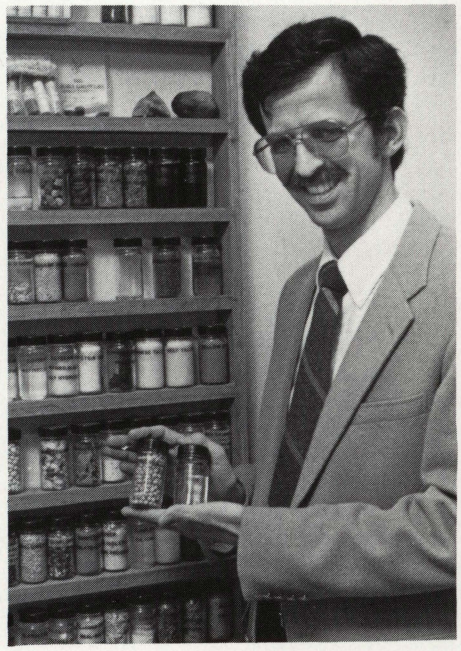
"Industries tend to locate where technologies are invented, so if we become late in addressing these issues, technology is likely to develop elsewhere," says Johnson.

The center is trying to develop industrial chemicals from crops. Johnson says most people immediately think of ethanol, but many things can be produced via fermentation.

"We have not had much of an effort within agriculture for industrial product utilization. The attitude has been at the federal level that should be best left up to industry, but industry is not very progressive in many cases," says Johnson. "They're looking for things that will pay back a profit in two to three years."

He says he is concerned about people's expectations of the center. Industry can't adopt the center's processes for possibly five to ten years, he says. "They are radical new approaches but since we just got many of these programs off the ground, they're several years from commercial applications.

"We aren't doing the easy things," Johnson says. "The ones with short pay-off are being done by industry." ■



Lawrence Johnson, associate professor of food technology, holds a jar of soy beans and a jar of soy bean oil which was produced through sonic enhancement. Photo by Jim Lee.

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IOWA FARM BUREAU FEDERATION

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Where belonging makes a difference!

Photos by Jim Lee

Farm House:

a glimpse of yesteryear.

by LaNette Kleen

The Iowa State University campus is known for its many historical land marks. One of these is the Farm House. The Farm House, located north of Ross Hall, is on it's original site. Construction of the three-story house began in 1860, two years after the State Legislature passed a measure to establish a State Agriculture College and Model Farm.

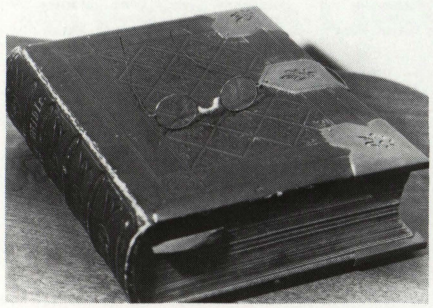
The location for the farm was chosen because it had six of the most common soil types found in Iowa, more than 50 varieties of plants, abundant water supply, plenty of gravel and material for making bricks.

Only three rooms were completed the first year, the kitchen and the two small rooms directly above it. At that time W.H. Fitchpatrick, who rented the farm for two years, lived in those rooms with his seven children.

The parlor, library, dining room and remaining bedrooms were completed in 1865. The parlor was originally two rooms; the front half was the office for the farm manager and the back half was the sitting room.

The room partition was taken out and the sun porch, french doors and fireplace were added about 1909.

Total cost of the construction was $4,000. All labor was done by volunteers who hauled foundation stone from a



The Farm House, renovated to look like it did in 1910, was covered with stucco to stabilize the original brick structure.
The Bible and glasses are placed in the parlor of the Farm House.

The Curtiss library, top left, was first pictured in the February 1907 issue of the Iowa Agriculturist.
Antique fans are displayed in a bedroom in the Farm House.
The door in the kitchen was bricked up in 1909 when the room was converted into a bedroom for Mrs. Curtiss, as she could not climb the stairs in her later years.

nearby quarry, cut timber from neighboring woods and fired bricks from clay taken from Clear Creek.

Restoration of the Farm House began in 1971. Funding for this project came from the Iowa Historical Preservation Society, ISU, Iowa State classes of 1920, 1922, 1923, 1975 and other university patrons and alumni.

The look of the house is from the period between 1869 and 1910. Over 8,000 items have been contributed or bought with donated funds.

The furnishings in the house represent the years 1860-1910. However, the kitchen has been restored to represent the 1860s. The furniture was donated to Farm House by alumni of ISU or Iowa residents. Some of the furnishings were purchaed with donated funds.
Agriculture and lived in the house for 50 years.

Other well known habitants of the house include I.P. Roberts, college secretary; Seaman Knapp, president of Iowa State College; and James "Tama Jim" Wilson, who served as Secretary of Agriculture under Presidents McKinley, Roosevelt, and Taft.

The Farm House is open to the public Sunday, Tuesday, and Thursday from 12 noon to 4 p.m. with an annual closing during the winter months. For special tours, contact Debra A. Steilen at 294-3342. ■

Students Step Towards Service Careers

by Connie Recker

"I love challenges and I look at this as a challenge. I plan on going back to the farm, but if my plans change, there will still be a lot of doors open to me," says Kim Brownell, a sophomore in Agricultural Studies-Farm Operation.

Even though some people are discouraged about agriculture, there are many excited about today's changes and meeting the challenges.

According to Dr. Kenneth Larson, associate dean for academic programs, the number of students enrolled in the College of Agriculture dropped from 3,409 in 1976 to 2,211 in 1986. But, he says students who want to pursue a career in agriculture should not hesitate.

"There is no better time for a high school student to come into agriculture because of the declining enrollment over the years," he says.

Larson explains the College of Agriculture has started offering many scholarships to encourage students to major in agriculture.

According to Roger Bruene, director of placement for the College of Agriculture, one of the biggest changes in the agricultural job market is the change from production to service oriented jobs.

"A whole array of service jobs connected with agriculture has mushroomed," says Bruene.

These service jobs include loan officers, information services and consultants in many areas.

A study done by the College of Agriculture showed that in 1981, 80 percent of Agricultural Studies-Farm Operation graduates went into farming or farm management. In 1985, 48 percent of the graduates went into farming or farm management and the remainder went into sales and marketing careers.

Larson says because of this change, programs in the College of Agriculture have altered their curriculum to provide more flexibility to the student.

According to Suzanne Klocke, adviser for Agricultural Studies-Farm Operation, this program is one example of the changing curriculum.

Klocke says the fall of 1987 curriculum will have three changes. Students will be required to take a sophomore career seminar, a business communication course, and the number of free electives will increase from 34 to 48 credits. This will not increase the credits needed to graduate.

"By giving the students more free electives, we feel we will be giving them more freedom to choose and tailor their career goal," she says.

Klocke explains by doing this students can choose several directions.

Brownell says she is not sure what she wants to use the electives for, but says she is excited because it will make it possible for her to get two or three minors.

Brownell explains she is really excited about the change in the curriculum. "I feel it will provide many opportunities for students like myself."

Klocke says advisers recommend students have a minor either inside or outside the College of Agriculture and are encouraged to find summer work experiences to experiment with different options.

Agricultural Studies 450 will be a requirement in the Agricultural Studies-Farm Operation curriculum starting in the fall of 1987. The students in this class manage a farm, serve as the board of directors and make all decisions concerning the 235-acre farm located south of Ames. This class has been offered for 43 years but now the administration feels it is very important to the student, comments Klocke.

"We feel that this class will give the students good experience and management skills and also help them better deal with situations they might face later on," says Klocke.

As part of research for her thesis, Klocke questioned Farm Operation curriculum graduates from years 1959 to 1984 about what skills they felt they received by taking Agriculture Studies 450. Forty-two percent of those responding felt they received communication and decision-making skills. Respondents said they also felt it helped them with information gathering, application and other skills.

According to Bruene there will be a turnover in agriculture-related jobs and a strong need for a degree beyond the bachelor degree.

There is more than one way for a student to prepare himself for the future, says Bruene.

"Academics is only one part of preparing oneself. You are looked at as a whole person and a degree is one component," according to Bruene.

Klocke says internships have become important because the student gets real experience in the field of his or her interest.

Bruene says good communication skills, motivation and personality characteristics play a large part when it comes to getting a job. The use of the computer has also become very important in all fields and many businesses use computers, according to Bruene.

"Computers are becoming a very integral part of our society and it is important for everyone to have some experience with them," says Bruene.

Klocke says she spends more time helping students with resumes and looking for jobs because more students are entering the business part of agriculture instead of returning to the farm.

"I feel that advising will become even more important now in the College of Agriculture because students need more help in choosing their course work to meet their career goals," Klocke says.

Bruene says he is concerned a lot of people in agriculture are getting discouraged and fail to realize that this is a time of change and will provide opportunities to excel.

"We are facing challenging times and I hope we get good men and women who want to be a part of that change and who want to help in finding solutions," concludes Bruene. ■

The Placement Office:

Opening Opportunities to Students

by Donna Ramaeker

Before World War II R.M.Vifquain began what is known today as the placement office for students in the College of Agriculture. Vifquain, former placement director, retired in 1958, but continued his work part-time.

Also, in 1958 Louis Thompson was appointed as associate dean to the College of Agriculture. Thompson says at that time he felt the placement office needed development.

"I felt we needed a full-time person to work with employers to establish contacts so Iowa State University would have people coming here to interview," explains Thompson.

Between 1958 and 1975 the job of placement officer was being filled by students earning Ph.D.s and not even being treated as a part-time job.

"It was always someone who looked on the position as temporary employment and really didn't give it the professional development I felt it should have," says Thompson. "The College of Ag was experiencing growth during this time and I felt it was essential that we be able to place our graduates."

For that reason, in 1975, Roger Bruene, the current placement director, was transferred from being head of the Farm Operation department, to the full-time placement director.

Brune says he feels an understanding of companies' needs is not likely to develop in an office that is constantly changing personnel.

"An important concept of a placement office is allowing the staff to become aquainted with organizations and their needs and how to work with them," says Bruene. "This allows a relationship to develop between ISU and organizations that are searching for employees."

Thompson's dream is being fulfilled. The placement office has a full-time director and offers a broad range of services to all levels of students in agriculture.

Even though the placement office seems like such a small part of the College of Agriculture, Associate Dean Kenneth Larson describes the office as, "extremely, extremely important."

"If we didn't have a placement office why would a student want to be in the College of Agriculture?"

According to Larson, students at ISU have an advantage because,"we have one of the best directors of all universities. He has a real interest in students, and does just about anything to be helpful. He's extremely dedicated. He doesn't just work 40 hours a week."

Some of the services offered by the placement office include traditional ones such as tips on resume writing, interviewing skills and letter wiriting.

However, there are numerous aspects which are unique. For example, all of the placement directors from the different colleges within ISU hold regular meetings to assure ISU students, as a whole, get the most of the services offered.

There may be a job opportunity or programs in the Business College that ag students could take advantage of, explains Bruene.

"This is to enhance and hopefully give ISU students maximum opportunities," he adds.

Also, to help students inspect their own personal values, the agriculture placement office, in cooperation with the Agriculture Business Club, presents Career Day. The day gives students an opportunity to go and talk to representatives from agriculture business companies.

"The companies that are there are not out to sell a product. They are there talking about careers," says Bruene.

"That's the time when you go and ask the dumb questions. And if you don't know what a dumb question is, the placement office will even give you some sample questions," he adds jokingly.

Bruene says he wishes 99 percent of the freshmen would attend Career Day just to walk around and look at the array of organizations and the potential career opportunities available.

"There is no way we can cover all the careers, but within that particular day we are giving access to many exciting directions," Bruene says. "One of the goals I continue to have is to widen the number of careers represented."

Besides working with the Agriculture Business Club for Career Day, Bruene also cooperates with Alpha Zeta in setting up mock interviews for students in the fall.

However, Career Day is just one opportunity for students to look deeper into career possibilities. The placement office also is a library of information on a variety of career opportunities.

Bruene says frequently, freshmen or sophomores who are considering a couple different majors go to him under recommendation of an adviser to talk about career opportunities.

"We talk for awhile and then I take them out into the hall to that board with all those slots," Bruene says, talking about the board outside his office in 120 Curtiss Hall. "You see I have a purpose for that out there, it is not just the latest jobs. There are a lot of old job descriptions out there that are good for students getting ideas about careers."

Bruene says he can look out into the hallway at any time, even when the

Roger Bruene, agriculture placement director, assists Brad Oelmann, a senior in agriculture business, in researching a future job opportunity. Photo by Laura Andersen.

building is locked, and see students reading job descriptions taken from the slots.

"They don't want to talk to me. They just want to look. It might give them some information about a career." comments Bruene.

"They can get some ideas and then maybe later they will need to talk to me," he explains.

Bruene says he never knows when a student needs career information- it may be a freshman, junior or senior or maybe after graduation. But he says he believes heavily in outreach.

"If anybody asks me for a meeting, I will go if it is possible. If I can meet students on their turf it is more comfortable for them," says Bruene.

When a student in the College of Agriculture is ready for more detailed career information, the placement office is a warehouse of information. A student can find anything from a notebook of outstanding resumes to company address lists, to files of information about prospective companies.

"I know how important it is for students to find out about companies they're interviewing with," Bruene says. "I want students to be comfortable when they interview, so I get as much information as I can."

Companies send the placement office information about their organization. However, Bruene says he also wants students to have access to information companies do not send.

"I have this clipping service," Bruene starts to explain, however, "its not really a clipping service, because its me!" he adds. "This information I give is gangbusters because if students are able to know something that's happened to an organization in the last month, they can ask questions and the company will be impressed."

Room 119 in Curtiss Hall, which harbors the company information files, is open at all times, even during the lunch hour.

"What I'm trying to do is come up with some advantages that will assist students and give them the edge," says Bruene. "I'm committed, and willing to serve ISU and students in the College of Agriculture in terms of assisting them in competing against students at other land grant universities."

One difference between ISU and other land grant universities is other land grant universities have more access through a physical closeness to organizations.

To counteract that obstacle, "ISU has good quality faculty, a reputation and good academic programs," says Bruene. "Of course that is not a function of the placement office, but if graduates are ready, qualified and perform for companies, then those companies will be back for more," he explains.

"Another difference is the special interview rooms.

"I know other universities have to hunt for offices to hold interviews, but we have the convenience of the rooms," Larson comments.

According to Larson, Bruene is what makes the services offered to the students so successful.

"If we put someone else in the office, that person may not have the important ingredients of dedication, concern, or committment to the students, nor the desire— at least not to the degree that Roger does," adds Larson.

Thompson agrees, "I can very proudly say Roger Bruene is looked on by other placement officers in the U.S. as their leader. He is very well respected."

Bruene attributes the success of the placement office to the strong network of advisers and staff in the College of Agriculture.

Bruene says he is dependent on advisers to tell him students strengths and weaknesses so he may give the employer an honest and fair evaluation. With that cooperation Bruene says he can continue to place high quality students with companies. That way companies will continue to come to ISU when filling job openings."

According to Larson, "It is an interchange of communication and ideas. We're all on this team together, he concludes," ■

THE IOWA AGRICULTURIST

Who's "There" and

by Melinda Jardon

Agriculture is diverse. Today 24 different majors, offered in the College of Agriculture at Iowa State University, attract students from farms, rural and urban areas. After graduation, students can find an infinite number of jobs relating to agriculture.

Besides teaching, research and production, students with agricultural majors are also filling service-oriented jobs.

In the years past, ISU students, and before that, Iowa State College students, found jobs the same way. They worked in and out of class. They graduated and searched for jobs through the placement office, and through contacts made during school.

Old issues of the *Iowa Agriculturist*, included a section titled, "Who's 'There' and Where". This section, later phased out, told magazine subscribers where recent graduates and alumni worked after graduation.

In the 1916 and 1917 issues, ISC agricultural students tended to do one of two things with their degrees. They either went home to farm with their father or brother, or, like today, they left the state to find management, service or production jobs.

Today, when students leave the state to find jobs it is blamed on the failing economy. But, those who leave are finding jobs much different from those jobs their ancestors found. Lets take a look at some of the careers our great-grandfathers may have taken after graduating from ISC.

The current Agriculturist staff managed to catch up with two of these early graduates' relatives so we could see what they did with the rest of their lives, and what happened to their assets or land.

In the *Iowa Agriculturist*, Volume XVII, July 1916, we found information about Gail Pullen.

Gail C. Pullen, Animal Husbandry, 1908, is doing general farming on a 400 acre farm near Whiting, Ia. His 180 acres of corn this last year averaged 45 bushels, 55 acres of oats made 50 bushels per acre and 125 acres of wheat went 26 bushels. He also had 25 acres of alfalfa, which yielded 5 tons per acre. He has made a small beginning for a herd of Red Polled cattle and has 12 head of pure bred animals. He expects to develop into dairy farming as fast as possible. Address is given above.

Gail Pullen's daughter-in-law still lives in his house, but the land has changed some since 1916. Gail's youngest of two sons, Don, stayed on the land, and married Harriet. Don, his brother and father have all died.

Harriet said most of the original 400 acres are still part of the 320 acres where she still lives, but some was sold to other family members.

"The home place is rented to seed corn," Harriet said, "and we have 80 acres up north planted to soybeans or corn."

She says there is no livestock in the family now. However, she explained how Gail and his sons raised livestock.

Gail never went into the dairy industry as the Agriculturist stated he planned to do. Instead, according to Harriet, he went into the chicken business.

"No, he had a chicken hatchery for quite a few years, seemed like it was a good dozen years," Harriet

Where

says. "He raised chickens and sold baby chicks around the area."

In the Iowa Agriculturist, Volume XVII, November 1916, the current staff found information about Charles Rhinehart.

Chas. Rhinehart, Agronomy, 1899, is farming extensively in Dallas County, Ia. On his 1,160 acre farm, he raised 600 acres of corn, 150 acres of oats, 50 acres of wheat and 100 acres of clover. He is keeping up the fertility by feeding practically all of the grain produced to cattle in his extensive feed lots. His address is Dallas Center, Ia.

This Charles Rhinehart died in 1944, but his farm still lives with the help of his grandson, Charles, born in 1943.

The land has grown to 2,800 acres, all owned by Rhinehart Farms, Inc. Charles, corporation president, said he is the only family member directly involved with the corporation. His two sisters are major stockholders and the corporation employs six others.

Today the land grows mostly corn and beans to help support the 1,500 to 1,700 commercial cattle that are fed out each year. Rhinehart says, "depending on the crop year, 35 to 40 percent of what is grown is fed to the cattle."

Rhinehart said while his grandfather was here at Iowa State College he worked for the Bomb. He has several of his illustrations hanging in his office. To keep the memory of his grandfather alive in more than his office, Charles and his family also live in the house his grandfather built in town.

Although these alumni could not be traced by the magazine staff, the *Iowa Agriculturist*, Vol.XVII, July 1916, No. 1, listed what they were doing then.

A.C. Epley, Agriculture, 1905, spent nine years after graduation in the implement business. Recently, however, he has returned to his original calling and is now farming a quarter section near Waverly, Ia. He is producing beef, pork and butter fat on a large scale. He has 140 head of hogs and 62 cattle. He is increasing the production of the soil by rotation, drainage and use of manure. Address given above.

M.L. Merritt, Horticulture and Forestry, 1904, has been up until January 1 forest supervisor of the Deschutes National Forest, in which work he had charge of 1,500,000 acres in all lines of work. Since the first of the year he has been put in charge of all the improvement work in the national forests of Oregon, Washington and Alaska. His address is Portland, Ore. U.S. Forest Service.

G.E. Frevert, Dairy, 1909, has been since graduation up to 1914 an instructor in dairying at the University of Idaho. At present he is a dairy manufacture specialist in the Dairy Division of the U.S. Department of Agriculture. He is located in the western office and his address is 318 Federal Bldg., Salt Lake City, Utah.

Wm. H. Smith, Animal Husbandry, 1906, is running a large farm in Alabama. He owns a half interest in the farm of 7,500 acres. The specialty of this farm is cotton, grain and live stock, there being 450 head of cattle and 400 head of swine. His address is Prathville, Ala.

Eldon R. Gordon, Horticulture, 1908, after graduation spent a year looking over western coast territory, afterwards purchasing a fruit ranch, which he operated for five years. He is now engaged in the dairy industry, producing milk for the manufacture of cheese in Tillamook county. His address is Hemlock, Ore.

The following graduate was first reported in the *Iowa Agriculturist*, Vol. XVII, November 1916, No. 5.

John S. Jones, Agriculture, 1903, spent a year with the Bureau of Plant Industry of the U.S. Department of Agriculture after graduation, when he took up farming near East Las Vegas, N.M. He is also assisting with the eradication of scabies in sheep and cattle under the direction of the Bureau of Animal Industry.

The last alumnist was found in the *Agriculturist*, Vol. XVII, March 1917, No. 19.

J.P. Anderson, Horticulture, 1913, upon graduation accepted a position with the U.S. Department of Aghriculture as chief horticultuist of the experiment station at Sitka, Alaska. He carried on numerous experiments to determine the best vaieties of fruits to grow in Alaska. He is now making plans for a large greenhouse at Juneau, where he will make a specialty of flowers. He may be addressed at Juneau, Alaska. ■

Ethanol Pumps Are Not Dry

Despite anti-alcohol advertising, ethanol blended fuel production is on the increase.

by Ronald J. Loch

The sign hanging between the pumps now reads *No Alcohol In Our Gas*. Gone are the days of 1978 when gasoline pumps were made to look like giant ears of corn and bumper stickers proclaiming "Running on Corn" adorned vehicles of gasohol users.

During the fuel crisis of the late 1970s, gasoline companies began adding a corn product of 10 percent ethanol alcohol to gasoline. The move was to lower gas prices. This was widely accepted by corn producers because it opened an alternative market for their product.

Now, with plunging fuel prices and controversy over whether the alcohol additive is harmful to engines, some petroleum companies are changing their marketing strategy and offering gasoline without the alcohol additive.

Although this marketing move may discourage students from using ethanol blended fuel, Lucy Norton, program director for the Iowa Corn Promotions Board in Des Moines, says the fuel is safe to use in vehicles and the production of ethanol offers career opportunities to students in agriculture.

Norton says despite the down-play

ethanol blended fuel is receiving from the petroleum companies, the amount of corn used for ethanol blended fuel production is increasing. One reason she cites is the Environmental Protection Agency's decision to ban the sale of leaded, regular, gasoline.

"Gas stations are not moving away from ethanol blended fuel, instead they are changing their marketing because the EPA is phasing out leaded gasoline. Gas companies are now using ethanol as an octane booster," says Norton.

When lead is removed from gas the octane, an anti-knock property, decreases. To counter this, ethanol is added. According to Norton, 10 percent ethanol raises the octane count by three, bringing the octane level back to that of leaded gasoline.

"There will always be a need for some alternative to leaded midgrade gasoline to replace regular gasoline because older model cars are designed to use it," Norton says.

The demand for corn to produce ethanol used as a fuel additive is increasing annually, says Norton. This makes ethanol the second largest national market for corn, which is projected to be a one billion bushel market by 1990.

Millions of Bushels Used

According to Norton in 1985, 242 million bushels of corn were used for ethanol blended fuel production, a 40 percent increase over the previous year. Last year, 300 million bushels went toward repetitive ethanol production and 360 million bushels are expected to be used in 1987.

Iowa processes 50 million bushels of corn annually into ethanol blended fuel production, three percent of Iowa's total corn production.

"The amount of corn used is important to farmers because the added demand increases corn prices," Norton says. "In 1985 the demand for corn to be used in fuel increased the value of corn by $158 million."

Norton says a Purdue University research team calculated that ethanol production increases the market for corn by nearly ten cents a bushel.

The rapid growth of the corn market opens opportunities for agriculture students as well as communities, adds Norton.

"The increased utility of Iowa's corn crop generates $270 million in economic activity," explains Norton. "Not only does it increase job opportunities for people wishing to work in corn production, transportaion, research or refining, it also increases the purchasing power of corn producers, which leads to an increase in the economies of communities," she adds.

However, says Norton, the Iowa Corn Promotions Board members see the new marketing move by petroleum companies as harmful because it can lead to a lower demand for the product.

The rapid growth of the ethanol market opens employment opportunities to students in agriculture.

Gasoline companies are changing their marketing strategy to put less emphasis on ethanol blended fuel because there is controversy about how safe it is for car engines, but some experts say they see no danger.

According to Jon H. Van Gerpen, Iowa State University assistant professor of mechanical engineering, there is no strong evidence ethanol blended fuel is harmful to automobiles.

"We've been burning ethanol blended fuel in Iowa for quite some time now and there isn't any evidence of any drastic problems," says Van Gerpen. "Someone has trouble with their car and they burn ethanol blended fuel, so they blame it on the alcohol, but there's someone else not burning ehtanol blended fuel, having the same trouble," he comments.

Van Gerpen says all cars sold in America today can safely use ethanol blended fuel, although he adds cars manufactured before 1978 may experience some damage.

"The older cars may have problems because the plastic and rubber wasn't designed for alcohol, but ethanol blended fuel is only 10 percent alcohol so it is not a radical change," he adds.

Jeff Ross, owner of Quality Auto Service at 307 E. Lincoln Way in Ames, says the percent alcohol in the fuel may be lower than 10 percent when it reaches the car tank.

"Alcohol evaporates quickly so by the time the fuel reaches the car tank, the percent alcohol is probably closer to seven percent," he explains.

damage to vehicles caused by ethanol blended fuel.

"I haven't seen any ill effects caused by alcohol fuel," says Ross. "Alcohol attracts moisture so there is the possibility of corrosion, but I haven't found any problems with it," he concludes.

Jan Lee, owner of Import Services in Ames, says imported cars with fuel injection systems may experience problems when ethanol blended fuel is used in the summer.

"I don't recommend using ethanol blended fuel when it is hot in the summer because alcohol vaporizes at a much lower temperature than gasoline," Lee says. This can cause a vapor lock in the fuel pump, making the car hard to start and, in some cases, wear out the fuel pump.

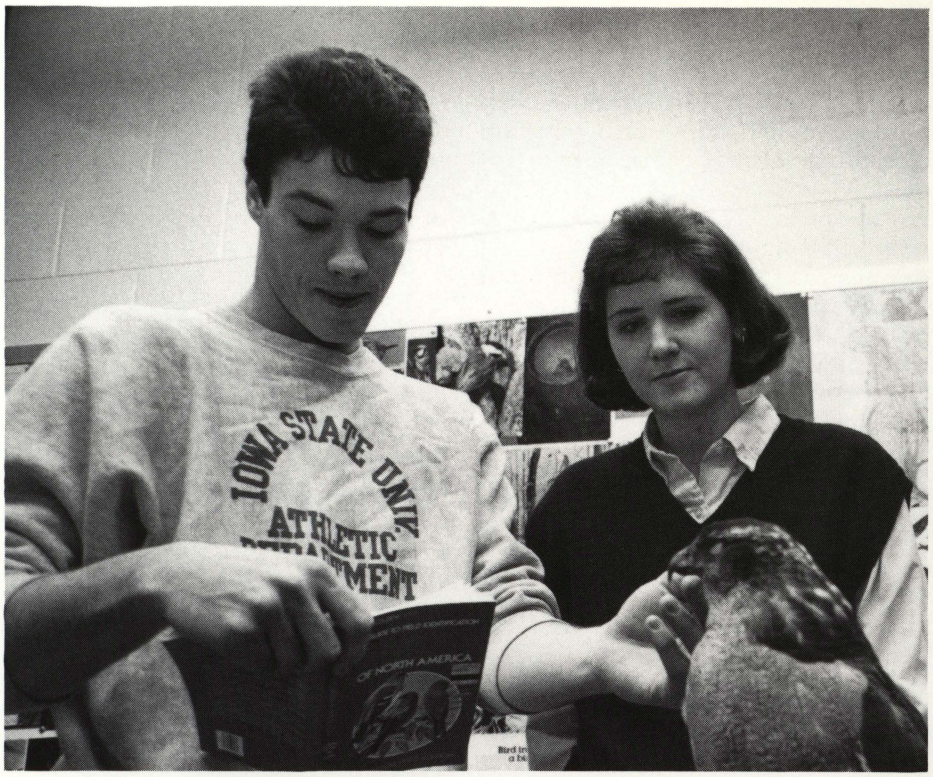
"However," Lee says, "I don't see any problems with burning alcohol fuel when temperatures are below 70 degrees."

Norton says the opinions of Lee, Van Gerpen and Ross are not unique. In a study conducted by the Iowa Corn Promotions Board, seven out of 10 Iowa car dealers said they used ethanol blended fuel in their personal vehicles. Of those using ethanol blended fuel, 78 percent reported their vehicle performance was equal or better than when straight gasoline was used.

"Those signs reading *no alcohol* are just part of an anti-alcohol advertising campaign and should be ignored," says Norton. "Ethanol blended fuel is a tested and proven product that is good for America, our cars, the environment and agriculture." ■

Regahol, a blend of 10 percent ethanal and 90 percent gasoline,can only be used in automobiles requiring leaded fuel. Photos by Joe Wagner.

Ag Majors Are For Everyone



Pat Branner and Janet Barud examine a bird study skin of a Northern Goshawk during a Friday morning session of Animal Ecology 325. Photo by Joe Wagner.

by Susan Dove

What is a person from the city doing majoring in agriculture? Janet Barud, a senior majoring in animal ecology, is asked that question often.

Barud, of Dubuque, chose animal ecology over her original choice, animal science. She says animal science seemed production oriented, almost to the point of exploitation. Animal ecology, she explains, is more "conservative and preservation oriented."

Barud is a minority in the College of Agriculture, according to data collected by Dr. Richard Carter, professor of agricultural education at Iowa State University. Carter surveyed students in Ag 110 orientation classes throughout the College of Agriculture in 1980 and 1985 to find out whether they came from rural or urban areas.

Carter classifies urban areas as any place other than farms or rural acreages.

According to Carter's calculations, in 1980, 56.5 percent of the 673 students surveyed came from farms. Another 9.4 percent hailed from rural acreages. These are people who lived in the country but not on a farm. This leaves 34.1 percent of the students from urban areas.

According to the 1980 survey, about three—quarters of the students had worked on a farm, and one—third had worked in agribusiness. So, although not quite half the students lived on a farm, Carter explains, they had been getting some farm experience.

Another student coming from an urban area is Laura Andersen, a freshman from Omaha, Neb. Andersen is an animal science, pre-vet major.

Anderson says she felt she would fare better scholastically if she took her requirements in the College of Agriculture instead of in Sciences and Humanities.

"I have never had any farm experience," says Andersen. However, she says she feels it will not be to her disadvantage.

Five years later, the number of students from farms decreased slightly while the number of urban students went up. Carter's figures show that 52.3 percent came from the farm and 36.7 came from urban areas. The percentage of students from rural acreages increased by 11 percent.

According to Carter's data, about 87 percent of those students had farm experience, while 13.2 percent had none.

Carter's 1985 figures show in many areas of the College of Agriculture, such as agronomy, animal science and agricultural mechanization, the majority of students came from farms or rural acreages.

However, urban students dominate some majors in the college. Carter's data indicate that in agricultural ecology, 86 percent of the students are from urban areas. Sixty percent of the students in entomology, 67 percent of those in food technology, and 62 percent of those in forestry come from urban areas.

Carter warns that some of these programs have small enrollments, so their percentages of rural to urban students may not be representative from one year to the next.

For example, says Carter, if a curriculum in a particular year contains two rural students and six urban students, it might give a distorted view of the breakdown in that curriculum.

However, he adds, in larger departments, such as animal science and agricultural business, the figures probably are closer representations of what is normally found.

Carter explains students from urban areas turn to agriculture for majors because of the career options. "I think

the main attraction in the College of Agriculture is the desire to work in the ag sector," he says.

Some students, for example, might want to work with animals but have limited experience with them, says Carter. "Maybe they have pets, and love animals..., so they select a career dealing with animals."

Andersen says her "final push" into a veterinary career came after reading books by James Herriot about veterinarians. The novels showed her that being a vet could be interesting, she explains.

"It's not just taking care of animals, but you have to relate to people," she comments, "and I feel I could do both if I choose this as a career."

Carter explains that students from the city can be at a disadvantage because they do not have the farm background their rural peers have.

For instance, Carter says, rural students pick up a basic knowledge of animal nutrition when they feed livestock. "When an instructor starts talking about nutrition, starts relating other diets of the animals, they (rural students) are going to be able to have an advantage in relating to that," he says.

That is the way Barud and Andersen say they felt when starting in agriculture classes. "Mostly, I felt like everybody else had a head start because they came from farm backgrounds," Barud explains.

Andersen says her instructors use terms she has never heard of before, and that other students "whip out answers." In addition, she seeks help from her roommate, a fellow animal science major.

"I had no idea what gilts or colts were, or what farrowing was," she comments.

An advantage students from urban areas have in their agriculture classes is their tendency to keep open minds about the subject, according to Carter. Students from cities do not have preconceived ideas about the topic, he explains, since they have limited backgrounds.

Urban students turn to agriculture for majors because of a desire to work in the ag sector.

Students who learned about agriculture on the farm tend to have their own ideas on the subject, Carter says.

"This is what Dad did, this is what Mom did, and they were doing all right with it, and here I have a professor telling me I should do it differently," Carter says of rural students' attitudes.

Andersen says the only advantage to being from a city is she has a wider perspective. She explains she is starting to have a small-town perception, so she can look at issues from both angles.

"Just because you come from a farm doesn't mean you know agriculture," states Carter. "Just because you come from the city doesn't mean you have no knowledge of agriculture.

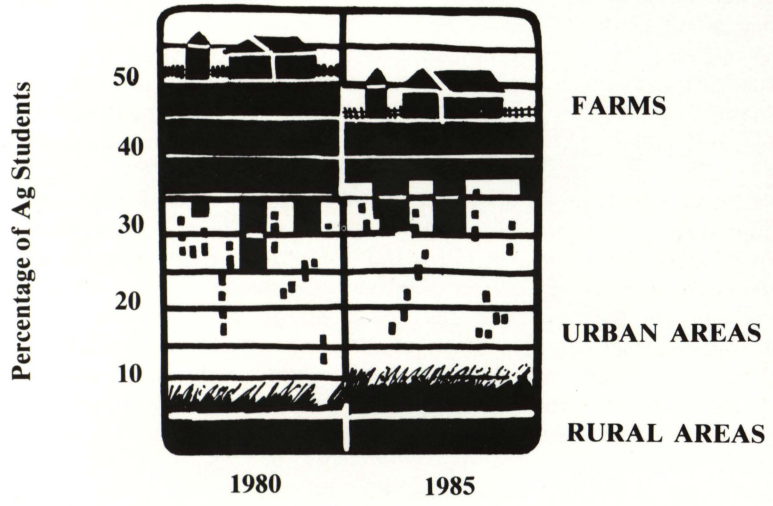
"So it becomes a personal assessment of the individual's strengths and weaknesses and then identifying ways of getting experience," he adds.

Students from urban areas are not difficult to advise, says Carter. "The key, I think, in advising, is to get students to identify their strengths and weaknesses, whether they are from the farm or whether they are from the urban setting."

Barud explains she kept her eyes and ears open, asked questions and relied on her coursework since she didn't have experience in agriculture.

One thing Carter emphasizes is becoming qualified to do a good job after graduation. Courses and farm-related experiences students have should help them become qualified, he says. Urban students need to get farm experience by working somewhere in the agricultural sector, he notes.

"I think anyone can blow off and blow out of here with a degree," Carter comments. "You learn how to play the game." People who want to learn how to do the job right will find ways to become qualified and play the game to win, he concludes. ■



85 years of tradition

Probably one of the college's most famous photographs was published on the Agriculturist cover in April 1911, just 76 years ago. The baby Shetland pony and large Clydesdale horse are reproduced above.

by Stephanie Dudden

For 85 years now students from Iowa State University have combined ideas, creativity and precious time to present the *Iowa Agriculturist*.

Little did the 13 members of the Agricultural Club of Iowa State College realize what they were starting when they took pen in hand to write for the first *Iowa Agriculturist* in 1902.

The first magazine of 24 pages, with no advertisements or illustrations, began monthly distribution on January 15, 1902 to farm families across Iowa.

The farmer's magazine from the farmers' college was origionally intended to keep farmers "in touch with the best college in the world."

Henry A. Wallace, a former U.S. secretary of commerce and the father of the *Wallaces Farmer*, wrote regularly for the *Iowa Agriculturist* during 1909 and 1910.

In May of 1943 the magazine was brought to a hault because of World War II. Then editor, Ben Brown, put the magazine to press and left to join the marines.

With the end of the war distribution of the 24-page magazine resumed in 1946.

In 1947, when beefburgers were 15 cents at the Blue and White Sandwich Shop in Ames, the *Iowa Agriculturist* became the magazine for "future leaders in agriculture." It served the students in the 'division' of agriculture in a variety of ways.

Each issue focused on research in the various 'divisions' of agriculture, such as beef production, plant breeding or livestock genetics.

There also were articles on women who were enrolled in agriculture. These columns were small features on the females telling their names, major, height, weight, hometown and career goals.

These columns rapidly faded. However, only a few years later, centerfolds were an addition to the publication. Fully dressed women, such as commodity queens, were usually featured.

A humorous column was also a part of each issue. It usually included jokes like this one: *"Now tell me, why the ram committed suicide when he heard Frank Sinatra sing." "That's easy he heard Sinatra sing, 'There'll never be another EWE.'"*

Yes, the *Iowa Agriculturist* has changed in the past 85 years. The current staff is made up of individuals from the College of Agriculture, College of Design, Science and Humanities College and the College of Business.

Today the 32-page magazine with $1500 worth of advertising, photos and illustrations is distributed once a semester.

Students on the staff volunteer their time to help bring this award winning publication to students in the College of Agriculture.

However, today the magazine still stands for, as the name implies, two great things, Iowa and Agriculture. Agriculture has been properly termed the basic industry of our nation and Iowa is the leading agricultural state.

In the past 85 years the agriculture industry has changed. The *Iowa Agriculturist* has watched it change and provided information about that change.

As with every issue in the past 85 years and for the next 85 years, the staff hopes to make it better. Because of the staff turnover the work is often new.

However, with our ever-increasing experience, the staff will try to make each issue more interesting, thus giving you, the reader, something that is good, helpful and will make life for you better, happier and more successful.

Thank you for your support. ■

Ag Council: *The Leading Edge*

In November, the Ag Council sponsors Ag Week, which begins with a volleyball tournament between clubs in the College of Agriculture, and features speakers and other activities throughout the week.

As part of the Welcome Day festivities at ISU the Ag Council sponsors a free barbeque for new Ag students. Pictured at the right are the faculty and administration from the College of Agriculture who serve the meal.

The ISU Agriculture Student Council is comprised of more than 35 representatives elected from curriculum and interest clubs in the College of Agriculture. The Ag Council functions as a liaison for the college's administration and student body.

The Ag Council is involved with a variety of activities throughout the year. In the fall the Council sponsors the Freshman Barbeque to provide incoming students an opportunity to meet faculty and fellow students in a relaxed setting. The annual Steak Fry is a means to recognize department heads, club advisors, club presidents, and the Ag Council representantives. Council representatives coordinate the various activities for Ag Week in November.

In the spring the Ag Council sponsors the Student-Prof Get-Together and has a display in conjunction with VEISHEA.

The Council also participates on the College of Agriculture's academic advising, scholarship and curriculum committees.

Folders with the Ag Council logo are for sale in room 122 Curtiss Hall.

For more information regarding Ag Council's activities and opportunities contact your club's representative.

COLLEGE OF AGRICULTURE
IOWA STATE
AGRICULTURE COUNCIL, 122 CURTISS, ISU, AMES, IOWA 50011

Agricultural Directory

A service to students and departmental clubs in the College of Agriculture.

Undergraduate Clubs

Ag Business Club—Open to all agriculture majors but especially of interest to ag business majors. The club sponsors Ag Career Days and regular meetings feature guest speakers. For more information contact advisers Paul Doake or Ron Deiter/294-5436.

Ag Education Club—Professional leadership development organization to promote individual and group decision-making and cooperation among agricultural educators. Contact Robert Martin/294-5872.

Ag Engineering Club—The ISU student branch is part of the American Society of Agricultural Engineers and promotes professionalism in ag engineering. Contact Dr. Carl Bern/294-1270.

Ag Mechanization Club—Promotes an increased understanding of agricultural mechanization, leadership opportunities and fellowship among members. Contact Victor Bekkum/294-5145 or Duane Mangold/294-5025.

Ag Communicators of Tomorrow (ACT)—Stimulates interest in the profession and facilitates the exchange of ideas among students, faculty and professionals. Contact Veryl Fritz/294-0483.

Agronomy Club—Promotes education and fellowship among students, faculty and other interested persons through trips, socials and speakers. Contact R.B. Pearce/294-3274 or Fred Troegh/294-3273.

Alpha Zeta—An honorary dedicated to scholarship, character and leadership in agriculture. Contact Donald Woolley/294-3066.

Block and Bridle—Using professional procedures, the club organizes and coordinates activities which provide students the opportunity to practice leadership abilities. Contact Brad Skaar/294-2242 or Lauren Christian/294-6325.

Dairy Science Club—Promotes fellowship and leadership among students interested in the dairy industry. Contact M.D. Kenealy/294-6021.

Entomology Club—Gives interested students an opportunity to interact with one another on a personal and/or academic level. Contact Wayne Rowley/294-1573.

Farm Operation Club—Broadens the views and develops leadership skills of students interested in agriculture by promoting new ideas through speakers, programs and special activities. Contact Suzanne Klocke or asst. adviser Tom Baas/294-6924.

Fisheries and Wildlife Biology Club/Student Chapter of the Wildlife Society—Encourages concern for and understanding of wildlife resources; provides for interaction among interested students. Contact Dennis Scarnecchis/294-7222.

Food Technology Club—Promotes interest in the food industry and provides educational, social and recreational activities to its members. Contact Homer Walker/294-6536.

Forestry Club—Creates social interaction among students and develops professional interest in modern forestry topics. Contact Dave Countryman/294-7703.

Horticulture Club—Seeks to further horticultural education and interest and provide awareness and practical experience to club members. Contact Nick Christians or Nancy Agnew/294-1916

International Agricultural Club—Open to international ag majors and others interested. Contact J.T. Scott/294-4866.

National Agri-Marketing Association (NAMA/ISU)—Provides opportunities to contact professionals, discover internship and job opportunities, explore careers and gain marketable experience. Contact Veryl Fritz/294-0483.

Public Service and Administration—Exists to promote information on careers and opportunities in PS and A as it relates to agriculture and rural areas. Contact Eric Hoiberg/294-8320.

Society of American Foresters, ISU Student Chapter—Promotes professional involvement through attendance at state and national meetings of the society and with on-campus speakers and projects. Contact Richard Shultz/294-7602.

Society of Professional Journalists (Sigma Delta Chi)—SPJ promotes 1) professional standards and 2)greater public awareness of journalism's role and responsibility in society. Contact Richard Haws/294-4340.

Soil Conservation Society of America, ISU Student Chapter—Addresses current issues in the wise use of our natural resources and provides programming on related topics. Contact Dr. Troeh/294-3273.

Sigma Alpha—Provides opportunity for women to share career and academic interest relating to agricultural fields. Contact Suzanne Klocke/294-6924 or Asst. adviser, Julia Gamon/294-0897

Women in Communications, Inc.—This national organization works to assure a free and responsible press and helps women advance in communication careers. Contact President Kim Whitehead/292-2826.

Graduate Clubs

Agronomy Graduate Student Club—Professional and social activities encourage cooperation, information exchange and good human relations among interested individuals. Contact Al Blackmer or Rick Cruse/294-4264.

Entomology Graduate Student Organization—Formally voices student interests and concerns, promotes professional and educational enhancement, and is a peer information source. Contact Jon J. Tollefson/294-8044.

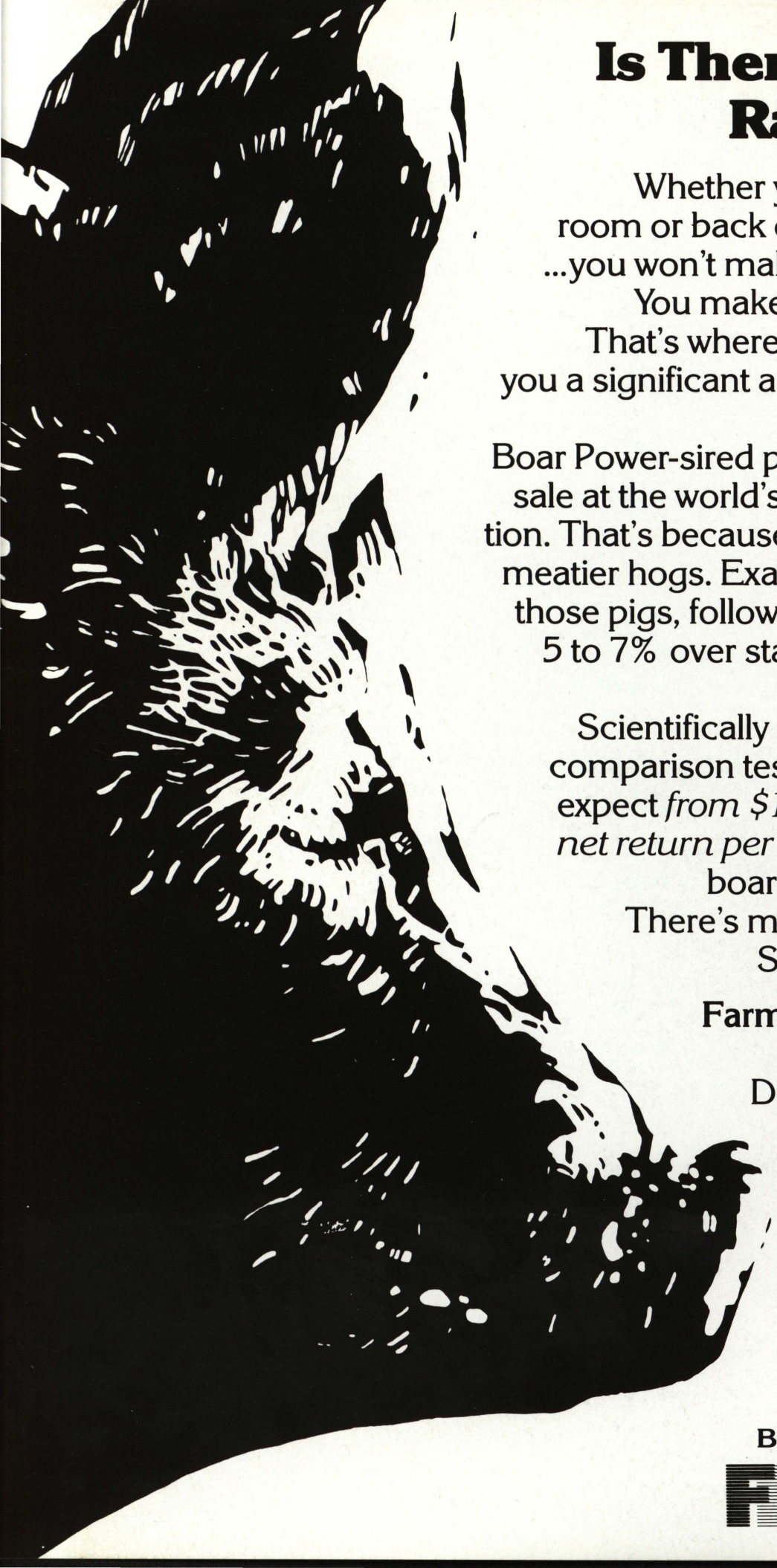
Forestry Graduate Student Association—Sponsors forestry graduate student/faculty social and professional functions; represents department graduate students in faculty meetings. Contact Carl W. Mize/294-1456

Genetics Graduate Student Organization—Affords graduate students a collective forum for discussion of new developments and issues in genetics. Contact Alan G. Atherly/294-7133.

Graduate Organization in Agricultural Education (GO in AG ED)—Fosters an atmosphere for personal and professional development of agriculture education graduate students at ISU. Contact David L. Williams/294-5872.

Meat Science Club—Stimulates interest and promotes academic excellence in meat science. Open to any interested graduate student. Contact D.G. Olson/294-1055.

Graduate Animal Nutrition Club (GNAC)—Provides opportunities for and encourages interaction among graduate students and faculty in animal science studying nutrition. Also provides resources for a nutrition reading room in animal science to support quality academic learning. Contact Fernando Escribando/294-2412.



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Sac City, Iowa
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